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09/942,828	08/29/2001	Toshihiro Tsukada	P5976a	1001

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EXAMINER
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QIN, YIXING

ART UNIT	PAPER NUMBER
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2622

DATE MAILED: 04/06/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/942,828

Applicant(s)

TSUKADA, TOSHIHIRO

Examiner

Yixing Qin

Art Unit

2622

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 29 August 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-40 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-40 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 29 August 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                        | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)               | Paper No(s)/Mail Date. _____  |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>10 December 2002</u> .  | 6) <input type="checkbox"/> Other: _____                                    |

## **DETAILED ACTION**

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

I. Claims 1-7, 9-24, and 26-34, 36-40 are rejected under 35 U.S.C. 103(a) as being unpatentable over Indei (U.S. Patent No. 5,131,077) and in view of the applicant's admitted prior art in the background of the specification.

**1. Claims 1, 13, 17 and 22**

**A printing apparatus comprising:**

- **a rewritable, nonvolatile, primary data memory unit for storing protected data including setting data and history data;**
- The Indei reference discloses in Fig. 1 a file holding section (item 32). Column 3, lines 41-43 disclose that this file holding section 32 corresponds to a RAM or a magnetic disk. The RAM or magnetic disk can be nonvolatile.
- Although Indei describes data that can be received as billing data, user profile data, confidential data (column 3, lines 27-30), it does not disclose specifically printer settings or historical data.

- The applicant's disclosure of the prior art in the background of the specification (henceforth referred to as simply "background") in page 1, lines 15-21, discloses "EEPROM," and storing "printer setting," and historical data."
- **a receiver for receiving command data from a host device through an interface device;**
- Indei, discloses in Fig. 1 a file r/w control section (item 31). One can see from the arrows that it can send and receive information from a host. Fig. 1 is an embodiment of Indei's backup control device for a printer (column 3, lines 27-37).
- **a printing unit for printing print document data based on said command data received by the receiver;**
- Indei discloses in column 2, lines 57-59, that "[d]ata prepared [is transferred] to the print server 5, where it is printed out as a hard copy." Fig. 2 shows the print server include a printer.
- The applicant's background discloses in page 1, line 26 various command data that could be sent to the printer.
- **a data update unit for updating selected protected data; and**
- Indei discloses in column 3, lines 55-61, a file renewing and forming section (Fig. 1, item 34). Lines 59-61, especially, disclose that the "...most recently updated important data is stored in the file holding section 34."
- **a data protection unit for making a back-up, nonvolatile, copy of protected data updated by said data update unit.**

- In the third embodiment of Indei's invention, one would understand that a floppy disk is used when one is storing data into a floppy disk drive (Fig. 8, item 56). Column 6, lines 34-36 discloses that the data is backed up. Although the above limitations mentions items from the first embodiment in Fig. 1, one can clearly see the third embodiment also has file renewing and holding sections.
- Both the Indei and the prior art in the applicant's background relate to the backing up of protected or important data. Therefore, it would have been obvious for one of ordinary skill in the art at the time of the invention to store information such as "printer setting" and "historical data" as mentioned in the background of the applicant's specification in a backup unit such as a floppy disk or a file server in Indei's invention. The motivation for doing so would be to backup different types of data deemed necessary by particular users.
- The limitations of claims 13, 17 and 22 are steps corresponding to the 2<sup>nd</sup> through 5<sup>th</sup> limitations of claim 1. Please refer to claim 1 for these rejections. Please note that the Indei reference discloses three different embodiments in which data is backed up into a file server, web server, and a floppy disk and one skilled in the art would have understood that other known backup storage devices could be used.
- Also, for the claims mentioning the use of a program to perform some steps, one skilled in the art would have known that Indei's invention could be created in either hardware (i.e. circuits/gates) or software (i.e. using hardware description language)

**2. Claims 2, 14, 18 and 23**

**A printing apparatus as described in claim 1, wherein**

- **said data protection unit includes a backup unit for copying the protected data content of said primary data memory unit to a rewritable, nonvolatile reserve data memory unit in response to at least one predefined data-backup triggering event.**
- Indei discloses in Fig. 8 (item 51) a R/W control section for writing to the floppy disk drive. Column 6, lines 25-30 discloses that the backing up of the data to the floppy disk is triggered by a “...predetermined instant in time...”
- Indei also discloses that the backup would, for instance, be activated once a day (column 3, lines 50-53). However, Indei further discloses “...the operator may make an instruction to transfer the data at any desired instant in time.” (column 6, lines 48-49). One would understand the need the to update the backup storage with the most current settings at the time in which the settings in the primary storage changes so that the most recent backup can be used if a restore function is needed to be performed.

**3. Claims 3, 15 and 19**

**A printing apparatus as described in claim 2, wherein**

- **said data protection unit further includes a data restore unit for restoring backed-up data content from said reserve data memory unit to said primary**

**data memory unit in response to at least one predefined data-restore triggering event, said backed-up data content being protected data previously copied into said reserve data memory unit from said primary data memory unit by said backup unit; and an event controller for detecting the occurrence of said data-backup triggering event and said data-restore triggering event.**

- Indei discloses in Fig. 8 (item 51) and column 6, lines 37-43 that a R/W control section acts as **data restore unit** since it controls the writing of the between the floppy disk and the file holding section.
- Indei discloses in column 6, lines 50-55 that data can be quickly restored from the backup when it has been erased. The erasure of the data in the primary memory could trigger a restore.
- Column 6, lines 11-12 discloses a time setting section 57, which acts as an **event controller for detecting the occurrence of said data-backup triggering event**, which is a “predetermined instant in time” as mentioned in the rejection to claim 2 above.
- Indei discloses in column 6, lines 50-55 that data can be easily restored to the primary memory if it has been erased. Although not explicitly stated by Indei, one would have understood that the “**data-restore triggering event**” could include a user inputting a request for file restore. The controller for this would be the file read and write control section (i.e. column 6, lines 37-43).

**4. Claims 4, 16, and 20**

**A printing apparatus as described in any of claim 1, wherein**

- **said reserve data memory unit is disposed in said interface device.**
- One can see from Fig. 8 that the floppy disk drive (item 56) interfaces with the printer backup section. The **reserve data memory unit** would be the floppy disk that is used to store the data in.

**5. Claim 5**

**A printing apparatus connected to a host device through an interface device having a nonvolatile reserve data memory unit, said printing apparatus comprising:**

- **a nonvolatile primary data memory unit for storing printing apparatus settings data;**
- The Indei reference discloses in Fig. 1 a file holding section (item 32). Column 3, lines 41-43 disclose that this file holding section 32 corresponds to a RAM or a magnetic disk. The RAM or magnetic disk could be nonvolatile. Indei describes data that can be received as billing data, user profile data, confidential data (column 3 , lines 27-30).
- **a receiver for receiving command data sent from said host device and relayed by said interface device;**



- Indei, discloses in Fig. 1 a file r/w control section (item 31). One can see from the arrows that it can send and receive information from a host. Fig. 1 is an embodiment of Indei's backup control device for a printer (column 3, lines 27-37).
- **a printing unit for printing text or image data when the received command data is a print command specifying text or image data;**
- Indei discloses in column 2, lines 57-59, that "[d]ata prepared [is transferred] to the print server 5, where it is printed out as a hard copy." Fig. 2 shows the print server include a printer.
- The applicant's background discloses in page 1, line 26 various command data that could be sent to the printer.
- **a data update unit for updating said printing apparatus settings data when the received command data requires the updating of settings data in said primary data memory unit; and**
- Indei discloses in column 3, lines 55-61, a file renewing and forming section (Fig. 1, item 34). Lines 59-61, especially, disclose that the "...most recently updated important data is stored in the file holding section 34."
- **a backup unit for copying settings data content from said primary data memory unit to said reserve data memory unit of said interface device.**
- Indei discloses in Fig. 8 (item 51) a R/W control section for writing to the floppy disk drive the data being stored in the file holding section.

- The motivation for the combination of the Indei reference and the applicant's background information is addressed in claim 1.

**6. Claim 6**

**A printing apparatus as described in claim 5, wherein**

- **said backup unit copies and stores the settings data content from said primary data memory unit to said reserve data memory unit when the settings data is updated by the data update unit.**
- The Indei reference does not explicitly disclose that data is backed up when it is updated, column 6, lines 44-49 discloses that it could be backed up at a predetermined time or whenever an operator desires. One would want the latest information to be backed up, and it would be obvious to choose the time in which the primary data is to be updated as a predetermined time for backing the data into the reserve data memory.

**7. Claims 7 and 24**

**A printing apparatus as described in claim 5, wherein**

- **the backup unit copies and stores the settings data content from said primary data memory unit to said reserve data memory unit when the power to said printing apparatus turns on.**

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- Again, from the rejection to claim 6 above, the operator can specify any desired time in which to backup the data in the primary memory to the reserve memory (i.e. floppy disk).
- Also, the applicant discloses in the background on page 1, lines 16-18, that settings could be restored from flash EEPROMs when the power is turned on.

**9. Claims 9, 26 and 29**

**A printing apparatus as described in claim 5, further comprising**

- **a data restore unit for copying the data content of said reserve data memory unit to said primary data memory unit.**
- Indei discloses in Fig. 8 (item 55) and column 6, lines 37-43 that a R/W control section acts as **data restore unit** since it controls the writing of the between the floppy disk and the file holding section.

**10. Claims 10 and 27**

**A printing apparatus as described in claim 9, wherein**

- **said data restore unit copies the data content of said reserve data memory unit to said primary data memory unit in response to said printing apparatus being turned on if said primary data memory unit does not hold current protected data and said current protected data is stored in said reserve data memory unit of said interface device.**

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- The applicant discloses in the background on page 1, lines 16-18, that settings could be restored from flash EEPROMs when the power is turned on. The primary memory could be empty (since powering off a printer can clear RAMs), in which case it would not hold **current protected data**.
- Indei discloses in column 6, lines 50-55 that data can be easily restored from a variety of backup devices that contain **reserve data memory units**.

#### 11. Claims 11 and 28

**An interface device connected to a printing apparatus having a primary data memory unit for storing settings data in a nonvolatile manner, and connected to a host device, said interface device comprising:**

- **a reserve data memory unit for storing in a nonvolatile manner, settings data from said primary data memory unit of said printing apparatus;**
- Indei discloses in Fig. 1 and column 3, lines 43-48 that the data in the file holding section 32 (**primary data memory**) is backed up in a file server.
- **a connection unit for connecting said reserve data memory unit to said printing apparatus to copy settings data from said printing apparatus to said reserve data memory unit;**
- In the same figure, Indei discloses a network for connecting to the file server.
- **a relay receiver for receiving command data sent from said host device;**
- and**

- **a relay transmitter for transmitting the received command data to said printing apparatus.**
- In the same figure, Indei discloses a R/W control section (item 31) for controlling reading and writing to and from the file holding section 32. This R/W control section effectively acts as the **relay receiver** and the **relay transmitter** as being claimed by the applicant since it communicates with the file server and the file holding section of the print control.
- The applicant's background discloses on page 1, lines 24-26 that command data can be sent to the printer through an interface to a host device.

## **12. Claims 12**

**An interface device as described in claim 11, wherein**

- **said connection unit further connects said reserve data memory unit to said printing apparatus for copying settings data from said reserve data memory unit to said printing apparatus.**
- Again, Indei discloses a network for connecting to the file server in Fig. 1. One skilled in the art would have understood that file transfer is two-way as indicated but the double-sided arrow next to the word network in Fig 1.

## **21. Claims 21 and 38**

**A computer-readable data storage medium as described in claim 17, wherein**

- **said data storage medium is one of a Compact Disc, a floppy disk, a hard disc, a magneto-optical disc, a digital video disc or a digital versatile disc, a magnetic tape, semiconductor memory, and a memory card.**
- Although neither Indei nor the applicant's background mentions the use of the above storage mediums, the examiner takes Official Notice that storage mediums such as CDs, floppies, hard disks, etc. are old and well known formats for storing programs and data. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use one of the above storage mediums. The motivation for using such mediums is that the data stored is non-volatile and can be portable when using CDs or floppies.

### **30. Claim 30**

#### **A printing apparatus connected to an interface device comprising:**

- **a receiver for receiving first data from a host device through the interface device;**
- Indei discloses in Fig. 2 and column 2, lines 57-59 that data from the workstations are transferred through the network to be printed. It would be obvious to send data to be printed from the file server 6 as well, since a file server is just a specialized computer. One can see in Fig. 3 that a transceiver is used for data reception.
- **a printing unit for printing said first data received by the receiver;**
- Indei discloses in Fig. 2 a printer (item 5b)

- **a rewritable first memory unit for storing second data including operating parameter data and history data;**
- Indei discloses a file holding section in Figs. 1, 6 and 8 for holding important information. This information may be billing data, user profile data, or confidential data (i.e. **second data**) (column 3, lines 27-30). The applicant's background also mentions that one could store printer setting and history data in flash EEPROMs, which are rewritable memories.
- **a data update unit for updating the said second data;**
- Indei discloses in column 3, lines 55-61, a file renewing and forming section (Fig. 1, item 34). Lines 59-61, especially, disclose that the "...most recently updated important data is stored in the file holding section 34."
- **an event control unit for detecting, as a backup event, that one or more predetermined first conditions are fulfilled; and**
- Indei discloses in column 4, lines 1-15 the storing of important data from the print control to a file server. The file read and write section is the **event control unit**. Indei gives an example in column 3, lines 50-53 that the **backup event** would be that data is periodically backed up, once a day. The condition for the backup event would be that time of the day has arrived.
- **a data protection unit having a backup unit for saving the updated second data to a rewritable second memory unit in response to a backup event being detected, said second memory unit being disposed in the interface device.**

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- The backup unit would be the file server that the data backup is being written to (column 4, lines 10-15). It would have been obvious that the file server stored this data in some form of memory, most likely a hard disk, as this is the conventional method of file storage in a server.
- Also, in the third embodiment of Indei's invention, one can see floppy disk drive (i.e. **interface device**) (Fig. 8, item 56) being used.
- Again, the motivation for the combination of these two references is mentioned in the rejection to claim 1.

### 31. Claim 31

The apparatus of claim 30, wherein

- **said event control unit is also for detecting, as a restore event, that one or more predetermined second conditions are fulfilled; and**
- As mentioned above, the file read and write control section is the **event control unit**. Column 4, lines 32-46 describes how it handles getting a file from a file server. The restore event, although not explicitly stated, could be a user requesting the file to be restored. A **second condition** for this to happen is that important data is erased from the file holding section (column 4, lines 58-63).
- **the data protection unit further includes a data restore unit for restoring data from said second memory unit to said first memory unit in response to a restore event being detected.**



- The file read and write control section would also read on the **data restore unit**, since it controls the reading and writing of data.

### **32. Claim 32**

**The apparatus of claim 30, wherein**

- **one or both of said first and second memory units are adapted to store data in a nonvolatile manner.**
- The first memory unit would be the file holding section of various embodiments of Indei's invention. Column 3, lines 41-43 discloses that it could be a memory region in a magnetic disk – which is non-volatile. The second memory unit of the various embodiments of Indei would be file/web servers or a floppy disk. One of ordinary skill in the art knows that the data would likely be stored in a hard disk on the servers. Hard disks and floppy disks are non-volatile.

### **33. Claim 33**

**The apparatus of claim 30, wherein**

- **said first conditions include updating said operating parameter data by the data update unit.**
- Indei discloses in column 3, lines 55-61, a file renewing and forming section (Fig. 1, item 34). Lines 59-61, especially, disclose that the “...most recently updated important data is stored in the file holding section 34.”

**34. Claim 34**

**The apparatus of claim 30, wherein**

- **said first conditions include the power to the printing apparatus power being turned on.**
- Again, from the rejection to claim 6 above, the operator can specify any desired time in which to backup the data in the primary memory to the reserve memory (i.e. floppy disk).
- Also, the applicant discloses in the background on page 1, lines 16-18, that settings could be restored from flash EEPROMs when the power is turned on.

**36. Claim 36**

**The apparatus of claim 31, wherein**

- **said second conditions include the power to the printing apparatus power being turned on and the operating parameter data being not stored in said first memory unit but being stored in said second memory unit.**
- Again, from the rejection to claim 6 above, the operator can specify any desired time in which to backup the data in the primary memory to the reserve memory (i.e. floppy disk).
- Also, the applicant discloses in the background on page 1, lines 16-18, that settings could be restored from flash EEPROMs when the power is turned on. In this case, Indei stores the data to a server or a floppy disk, which are other well-

known types of data storage devices.

**37. Claim 37**

- **A computer-readable data storage medium carrying a program causing a computer connected to a host device through an interface device having said second memory unit to function as a printing apparatus according to claim 30.**
- The printer backup control of Indei's invention (Figs. 1, 6, and 8) reads on the **computer device** since a computer is known to be electronic machinery capable of processing information. The **host device** can be the file/web server that the backup control is connected to through a network.

**39. Claim 39**

**An interface device adapted to be used with a printing apparatus as defined in claim 30 for connecting the printing apparatus to a host device, comprising:**

- **a relay receiver for receiving first data from the host device;**
- **a relay transmitter for sending the received first data to the printing apparatus;**
- In Fig. 1 discloses a R/W control section for controlling reading and writing to and from the file holding section. This R/W control section effectively acts as the **relay receiver** and the **relay transmitter** as being claimed by the applicant since

it communicates with the file/web server/ floppy disk and the file holding section of the print control.

- **a memory unit for storing data in a nonvolatile manner as said second memory unit; and**
- The backup unit would be the file server that the data backup is being written to (column 4, lines 10-15). It would be obvious that the file server stored this data in some form of memory, most likely a hard disk, which is non-volatile.
- **a connection unit for connecting said second memory unit to the printing apparatus to allow saving second data from the printing apparatus to said second memory unit.**
- In Fig. 1, the file server is connected to through a network.

#### 40. Claim 40

The interface device of claim 39, wherein

- **the connection unit is adapted to allow copying data from said second memory unit to the printing apparatus.**
- One would understand in looking at Fig. 1 that the network is for data transfer.

II. Claims 8, 25, and 35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Indei (U.S. Patent No. 5,131,077), in view of the applicant's submitted prior art in the background of the specification, and further in view of Takaoka (U.S. Patent No. 5,103,318).

**8. Claims 8 and 25**

**A printing apparatus as described in claim 5, further comprising a power off command input for receiving a power-off command indicating an interruption of power supply to said printing apparatus, wherein**

- **said backup unit copies and stores the settings data content from said primary data memory unit to said reserve data memory unit when said power-off command is received.**
- Again, from the rejection to claim 6 above, the operator can specify any desired time in which to backup the data in the primary memory to the reserve memory (i.e. floppy disk).
- Although, neither Indei nor the applicant's background discloses the backing up of data when power is turned off, it is inherent for electronic machinery such as printers to have power. Conventional printers have a power button for turning the printer on and off. Again, the operator can decide to back up the data at any time (Indei, column 6, lines 48-49).
- The tertiary reference, Takaoka, discloses an apparatus with a backup memory capable of saving information when power is turned off and then back on (Takaoka – abstract)
- All three references are in the art of printing and making backups of important information. Therefore, it would be obvious to one of ordinary skill in the art to backup the data before the power is turned off since one would have understood

that power loss is usually associated with data loss. The motivation would be to prevent loss of important data.

**35. Claim 35**

**The apparatus of claim 30, further includes**

- **a power-off command input means for accepting a power-off command interrupting the power supply to the printing apparatus, wherein said first conditions include reception of such power-off command.**
- Although, neither Indei nor the applicant's background discloses the backing up of data when power is turned off, it is inherent for electronic machinery such as printers to have power. Conventional printers have a power button for turning the printer on and off. Again, the operator can decide to back up the data at any time (Indei, column 6, lines 48-49).
- The tertiary reference, Takaoka, discloses an apparatus with a backup memory capable of saving information when power is turned off and then back on (Takaoka – abstract)
- Again, the motivation would be the same as the rejection to claim 8 above.

***Conclusion***


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Yixing Qin whose telephone number is 703-306-4142.

The examiner can normally be reached on M-F 8:00-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward Coles can be reached on 703-305-4712. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

YQ

  
EDWARD COLES  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 2600